

WP SALES PROJECTIONS, 1982
BCL)



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OPPORTUNITIES IN WORD PROCESSING

Summary and Recommendation

Shipments of office automation equipment — copiers, business communication devices, word processing systems, image printers, etc. — totaled approximately \$11 billion in 1981. By 1985, sales should reach \$18 billion, a 13.1% compounded annual growth rate. With the rapid changes in microelectronics, however, individual segments of the overall market are likely to grow at about twice this rate. Word processing, for example, which currently accounts for 15% of the office automation industry, is expected to increase its share to 30% or \$5.4 billion by 1985, a compound annual growth of 35%. In our opinion, a number of factors will be responsible for this growth.

1. The need for productivity savings to offset generally rising costs is strong, and businesses are increasingly willing to invest in products such as word processors that raise efficiency levels.
2. Improving technology in microelectronics is lowering the cost of components while increasing memory storage; such improvements allow end products to do more for less money.
3. A systems approach is emerging which emphasizes the cost-saving benefits from networking.
4. Government policy toward big business is shifting to allow freer competition through deregulation and to provide investment incentives through tax legislation.

There is little doubt that acceptance of word processing as a means to improve productivity and offset the effects of inflation is gaining momentum in the business community. Mass media advertising by the larger participants and widespread articles in popular periodicals have generated greater public awareness of the need for and benefits of office automation. Companies have set up special word processing departments to handle text processing functions and to ease the transition to the automated office. Currently, banks, insurance companies and law firms are among the major users of word processing; but any industry with heavy information handling is a potential customer. In our opinion, as one firm in a given industry automates, others are likely to follow suit because of the cost advantages from realized productivity savings. We expect this trend to spur demand among white collar workers.

ADDITIONAL INFORMATION IS AVAILABLE UPON REQUEST.

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Vs radical view:

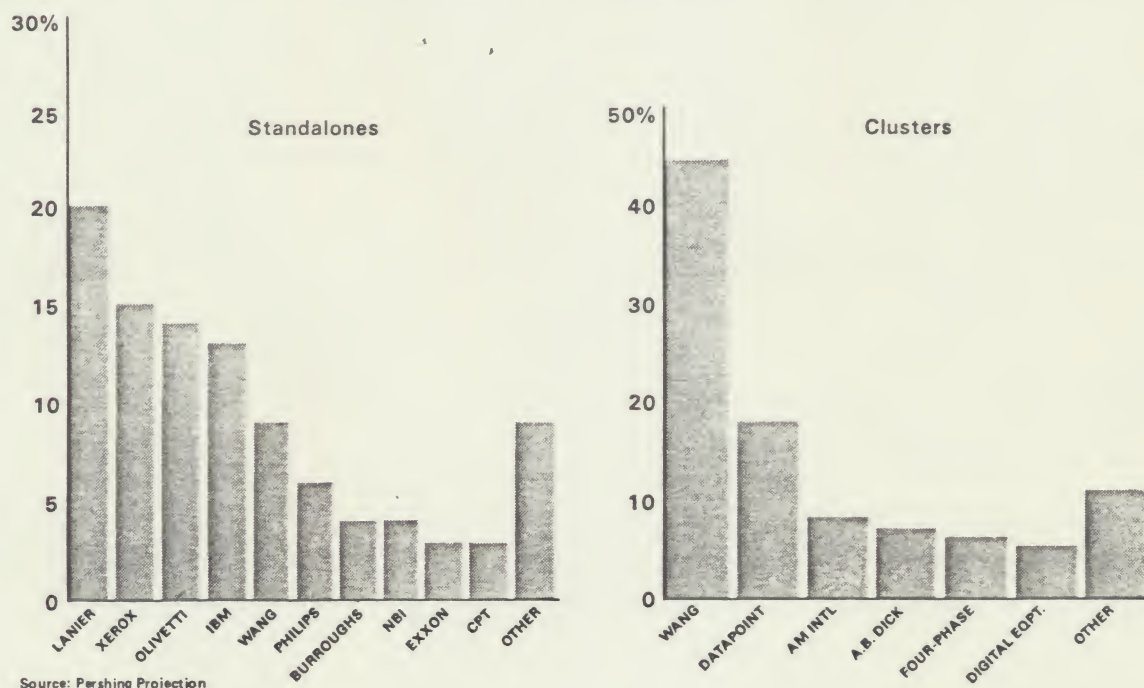
*"Not's how
it should be."*

We believe that the word processing industry offers attractive investment opportunities for growth-oriented accounts. At present, we are recommending purchase of Lanier Business Products (\$16), Mohawk Data Sciences (\$13), and Wang Laboratories (\$31). Although we are positive toward Datapoint Corp's (\$23) long-term prospects, we would advise a more cautious investment posture over the near term and we rate the shares hold/buy.

Participants

Participants in the word processing market include large data processing firms, smaller personal computer manufacturers, and traditional word processing vendors. Fifteen companies have at least 2% of the market, led by Wang Labs with about 22%, Lanier Business Products with 12%, and Xerox, Olivetti of Italy, and IBM with roughly 8% each.

Estimated 1981 W.P. Shipments: Market Shares



Recent government decisions will affect the collected fortunes of many current participants in word processing. International Business Machines, which now controls only 8% of the word processing market, has been relieved of the Justice Department's long-standing antitrust suit. Although IBM has seemingly ignored the suit in the past few years by entering new, computer-related markets, in our opinion, this computer giant has been withholding key product introductions in anticipation of the suit's dismissal. We feel that IBM will now be more aggressive in pursuing growth opportunities in areas such as word processing, and we expect this attitude to have a material effect on WP vendors hoping to penetrate the company's traditional Fortune 1000 customer base.

In a related development, the Justice Department settled its case against AT&T in an agreement which, in effect, allows AT&T — once divested of its operating companies — to compete in the unregulated communications and computer markets. The timing of the divestiture as well as the extent to which AT&T will remain a regulated entity is unclear at this time; thus, we do not expect that this landmark decision will alter the competitive environment for traditional word processing vendors for several years.

The Market: Demographics and Size

Over the last ten years, office productivity has risen only 10% versus 84% in the factory. Meanwhile, the number of entry-level workers (age group 16-24) in the U.S. is falling due to population shifts. In 1980, there were 25 million such workers and the level is expected to decline 12% to 22 million by 1990. In addition, the cost of training is expected to rise sharply as the turnover of personnel increases.

A 1977 study of all office workers showed a 17% annual turnover rate; two years later, in a study of four midwestern companies, that rate had risen to 56%. Thus, we see a growing trend toward fewer, more expensive entry-level employees available to process increasing loads of information. The need for some form of automation to offset this trend is reflected in the shift from single purpose products (e.g. typewriters) to multifunctional devices (e.g. word processors).

Currently, the ratio of secretaries to word processors is 5:1. International Data Corp. (IDC), an independent consulting service, estimates that by 1985, that figure will be closer to 5:4. IDC estimates that productivity savings in the office should be 60% for clerical workers and 33-50% for professionals, depending on their tasks. Although cost savings from implementing WP seem assured, only 10% of the potential market has been penetrated to date. Vendors, recognizing that an explosion of demand lies ahead as the applications of WP increase, are expanding product lines and devising new strategies to crack the marketplace.

The largest potential market for word processors is in clerical applications where capital investment has traditionally been low. Firms have backed office personnel with a capital investment of only \$3000/employee, in contrast to the roughly \$70,000/employee spent on factory workers. Since about 45 million workers, or 50% of the U.S. workforce, are involved with information processing, an increase of only \$120 per year in capital outlays for office employees would result in the \$5.4 billion market projected for 1985. The research firm of Arthur D. Little estimates that companies will support their office workers with a \$7500/employee investment by 1990.

Market Segmentation

Although categorization is difficult due to the large number of products, word processing equipment can be roughly segmented into three groups: standalones, shared resource clusters, and distributed processing systems. A standalone WP unit consists of a single display screen for viewing, a typewriter keyboard for input, disc drives with floppy discs or diskettes for storage and software, a letter-quality printer for output, and a microprocessor which interprets and implements instructions from the operator. At one time, standalones comprised 100% of the market; today only 60% of word processors

fall into this category. This decline is a result of the trend toward multifunctional systems. One industry study estimates that 50% of users have upgraded their standalones to multiterminal configurations. The demand for standalones remains strong, however, especially among first-time users and smaller businesses. Shipments are projected to grow 30% annually. As a result of the shift toward multiterminal systems, companies which historically have offered only standalones are entering the shared-resource market.

A shared-resource cluster consists of a configuration of standalone units linked by coaxial cable to common resources or peripherals. The advantage of a cluster is that an expensive item such as a printer can be shared among many terminals, thereby lowering the average cost of the peripheral device. A customer can expand his system gradually as his business grows, without having to buy a new system. Shipments of shared resource clusters are growing faster than the rest of the market, at a 40% estimated annual rate.

Distributed processing systems, which are similar to shared-resource clusters in that many terminals share common peripherals, also involve sharing logic and memory from a central processing unit (CPU). Shared logic offers distinct cost advantages among large users; consequently, distributed processing finds wider use among the large national accounts with long distance communication between offices as well as local processing needs. Manufacturers are offering local clustered networks within the framework of a larger distributed processing system. Historically, these systems have been limited to data functions; but manufacturers are now endeavoring to provide word processing and graphics capabilities, too. Because the average size of an order is larger for shared-resource clusters and distributed processing systems, a more sophisticated sales force and greater capital is required to market the products.

System Compatibility: Toward the Office of the Future

In the future office environment, dedicated functions such as word processing, data processing, audio processing, and image processing will be fully integrated into a compatible network. Market emphasis has already begun to shift toward a systems approach; therefore, compatibility — the ability of different products to communicate with each other — is becoming increasingly important. Compatibility poses a problem at both the hardware and the software level.

Hardware compatibility refers to a physical accessibility between devices and can be accomplished by providing necessary outlets or "ports" for other vendors' equipment to plug into. When independent devices are linked together, the result is a local network. Shared resource clusters and distributed processing systems are rudimentary examples of local networks, but both systems lack in varying degrees the ability to create a common database among participating devices. More sophisticated local networks are being marketed by Datapoint, Wang, and Xerox, but in our opinion, very few users presently have applications which are sophisticated enough to justify paying the high cost of these advanced networks.

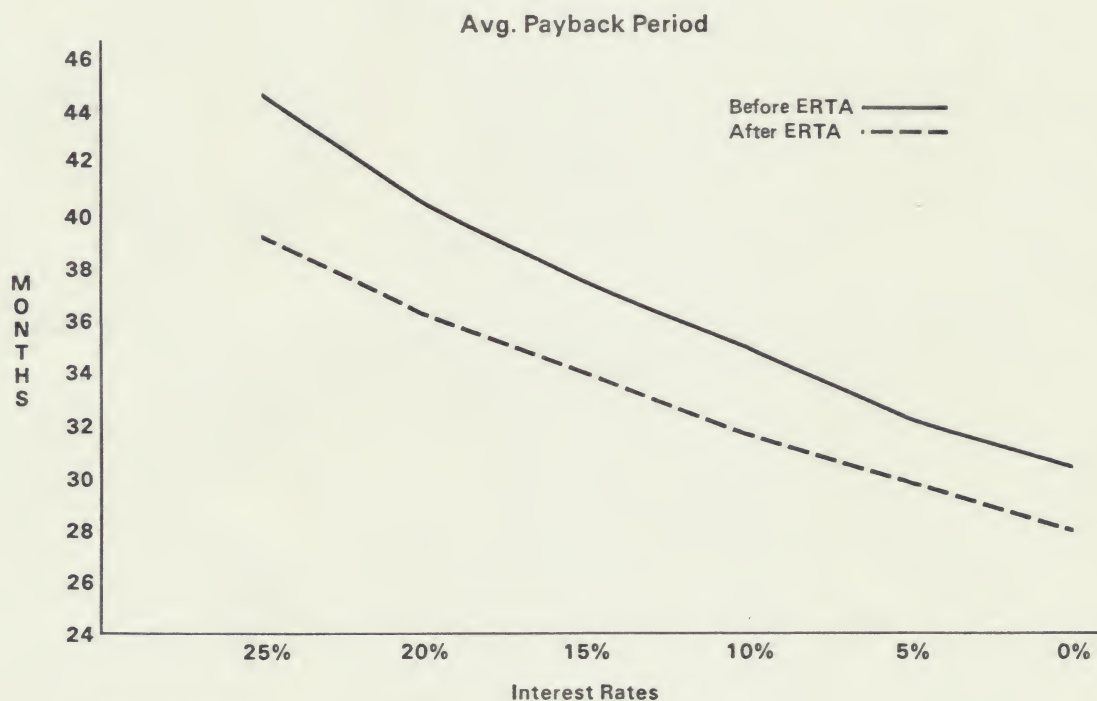
Software compatibility is a more complex problem, since it involves coordinating the different operating systems (the preset procedures for interpreting and implementing instructions) of word processing manufacturers. When two products run on different operating systems, they cannot truly communicate despite hardware

compatibility, unless a emulator (the "black box" which translates operating systems) is available. Because software is becoming increasingly expensive to produce, and because many firms market their software directly to end users, vendors are reluctant to provide software-compatible systems unless it is to their marketing advantage. For instance, in order to sell to the Fortune 1000 companies, 90% of which have some IBM equipment, most firms offer IBM-compatible systems.

The Economic Recovery Tax Act of 1981

The Economic Recovery Tax Act of 1981 contains a provision which should help spur demand for word processing equipment by shortening the payback period on such equipment. A payback period is generally defined as the time needed — through depreciation, tax credits, and productivity savings — for a firm to pay for an investment. Under the new law, equipment is depreciated over a five-year period, rather than eight years as the old law required. If we assume standard productivity savings of 50% each year from implementation of a WP system, the payback period drops from 30.4 to 27.9 months under the new law.

As we noted earlier in this report, the current low level of market penetration may indicate a hesitancy by potential users to invest in a product which could become outdated before its payback period. Demand should increase as such firms realize that they can recoup their investment sooner. Since the payback period contracts or expands relative to the rate of interest, a further stimulus to demand should occur if interest rates fall. According to our estimates, the average payback period is three years (36.2 months) when the cost of money is 20%, 33.9 months at a 15% cost of money, and 31.6 months at a 10% cost of money. Therefore, as interest rates decline, firms which have delayed purchases may enter the market.



Source: Pershing projection.

Conclusion

We believe that the word processing industry offers attractive investment opportunities. The industry is still young and many uncertainties exist as exponential growth continues. With over 150 companies currently in the marketplace, IBM's foot back in the door, and AT&T looming on the horizon, a shake-up is imminent. Although a shake-up is not likely to occur over the near term, survivors will have to have technically superior products, successful marketing channels, and financial strength to weather the highly competitive market when supply overtakes demand. We believe that the companies in our coverage will be among these survivors and we consider the current low prices as an opportunity to purchase shares of Lanier Business Products, Mohawk Data Sciences, and Wang Laboratories.

Lanier Business Products (Buy)

Lanier has produced consistent growth in both earnings and revenues over the past five years while establishing itself as an aggressive competitor in the low-priced end of the word processing market. Its "No-Problem" word processor has been the traditional leader among standalones. First half earnings declined to 64 cents per share in fiscal (May) 1982 from 67 cents in fiscal 1981 due to introductory costs on eight new products presented in the first quarter. Although we believe that most of the negative impact on earnings from these introductions is past, the recession has slowed order rates and we estimate earnings of \$1.75-1.85 per share for fiscal 1982. A recent distributorship agreement with 3M gives Lanier 40% of the 3M domestic copier marketing territory (up from 6% previously) and improves the outlook for Lanier's fiscal 1983 earnings, which could reach \$2.40-2.50 per share.

Mohawk Data Sciences (Buy)

Mohawk is a leading manufacturer of distributed processing systems and small business computers; fiscal 1981 revenues were \$287.4 million. In September, the company was awarded a \$97 million contract from Nationwide Insurance for 3,500 Series 21s, deliverable over a three-year period, and a seven-year service agreement. Earnings per share have risen 29.6% annually from 34 cents in fiscal 1977 to \$1.53 in fiscal 1981. Mohawk is particularly vulnerable to currency fluctuations caused by a strong dollar because almost half of its revenues are derived from overseas sources. The company restated six-month earnings (in accordance with FASB No. 52) to 54 cents per share versus 22 cents previously reported and 79 cents earned a year ago. Recently reported third quarter earnings of 31 cents per share versus 39 cents were in line with our expectations and we look for full-year earnings of \$1.20 per share this year. MDS appears to be capable of superior earnings growth based on an established worldwide sales and service organization and a product line which is supported with vertically integrated software.

Wang Laboratories (Buy)

Wang Labs, the world's leading producer of word processing equipment with over 20% of total 1981 industry shipments, has experienced rapid earnings growth of over 40% per year since 1977. Wang has been using this rapid growth to increase spending on R&D, marketing, and capital expansion programs in order to maintain its leading position in the "office of the future." The company has a broad-based product line ranging from a standalone word processor, the Wangwriter, to its top-of-the-line Alliance system. At this time, we do not anticipate a domestic order slowdown at Wang to the same degree as at some of its competitors. We continue to estimate earnings of \$1.70 per share for fiscal (June) 1982.

Datapoint Corp. (Hold/Buy)

Datapoint recently reported disappointing earnings for the second successive quarter (\$1.08 per share versus \$1.16 in the first half of 1981) and has experienced a deterioration in its basic domestic business due to the recession. The company has proven particularly vulnerable to adverse economic conditions over the near term because of its reliance on "concept selling" (selling to a customer based on a future level of need) to market its product line which is based around its ARC local network. In addition, the company has experienced some production problems with its Information Switching Exchange (ISX), a digital and voice PBX capable of simultaneous transmission. Although DPT is a product-rich company with excellent long-term growth prospects of 25% per year, the present economic climate suggests a more cautious investment posture for the near term.

J. Jolson
P. Cavalier, C.F.A.

	4/7/82 Price	Price Range 1981-82	% Decline from High	Earnings Per Share 1981 1982E	P/E 1982	L-T Debt as % of Total Capital	Rtn on Avg Equity	Book Value Per Share
Burroughs (BGH)	\$ 35	\$55-27	36.4%	\$3.58	7.8x	29.4%	6.8%	\$51.88
Compucorp** (CCUP)	10b	14- 7	32.1	0.22	13.6	46.6	25.3	1.15
CPT Corp.** (CPTC) ¹	16b	22-11	29.5	1.05	11.4	30.8	29.2	3.30
Datapoint (DPT) ²	25	68-20	62.7	2.20	8.1	24.7	20.0	16.33
Digital Equip. (DEC) ¹	80	113-71	28.9	7.50	9.4	5.2	12.8	49.31
Intl Bus. Machines (IBM)	62	72-48	14.2	5.63	9.1	18.5	21.6	28.20
Lanier Bus. Prods. (LBP) ³	16	23-13	29.3	1.80	6.7	27.9	30.1	6.18
Management Asst (M) ⁴	14	18- 9	24.3	1.40	7.8	24.5	7.7	11.25
Mohawk Data Sci. (MDS) ⁵	13	28-10	54.5	1.20	7.4	27.6	14.5	11.80
Motorola (MOT) ⁶	60	91-49	34.1	5.56	11.8	22.8	13.9	36.74
NBI (NBI) ¹	23	35-17	33.9	1.15	13.9	1.7	22.9	5.08
Pitney Bowes (PBI)	28	35-22	18.9	3.78	6.3	27.4	14.8	26.20
Prime Computer (PRM)	22	49-17	54.3	1.25	13.2	29.0	26.4	4.80
Wang Labs* (WANB) ¹	31	46-25	32.3	1.70	14.1	41.0	23.8	7.81
Xerox (XRX)	38	64-35	41.4	7.08	5.0	17.1	16.3	44.11
Average			35.1%		9.7x	24.9%	19.1%	

* American Stock Exchange

**OTC

¹Fiscal year ends June 30; earnings are F 1982E and F 1983E.

²Fiscal year ends July 31; earnings are F 1982E and F 1983E.

³Fiscal year ends May 31; earnings are F 1982E and F 1983E.

⁴Fiscal year ends September 30.

⁵Fiscal year ends April 30; earnings are F 1982E and F 1983E.

⁶Acquired Four-Phase Systems 3/2/82.

